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ABSTRACT

3D COMPUTER GRAPHICS PROCESSING APPARATUS

AND METHOD

In a computer graphics apparatus, a three-dimensional

object is modelled using a mesh of triangles which

approximate the object surface. To display images, each

triangle is sub-divided into smaller triangles, which do

not necessarily lie in the same plane as the original

triangle.   In this way, the curvature of the object

surface can be more accurately modelled. A parametric

patch, such as a Bernstein-Bezier triangular patch or

Heron patch, is used to determine how to divide each

triangle into smaller non-planar triangles. In addition,

the number of non-planar triangles is determined using

the size of the original triangle in the current or a

preceding frame of image data. The non-planar triangles

are stored for use in subsequent frames which require the

same number of non-planar triangles, thereby reducing

processing requirements. Rather than carry out lighting

calculations for the vertex of each new non-planar

triangle, lighting values are calculated and used to

define a parametric patch which is subsequently used to

determine lighting values for the new triangles.

(FIGURE 2)